IEEE Transactions on Industrial Informatics

CALL FOR PAPERS

for Special Section on

"Engineering Industrial Big Data Analytics Platforms for Internet of Things"

The Theme: Over the last few years, a large number of Internet of Things (IoT) solutions have come to the IoT marketplace. Typically, each of these IoT solutions is designed to perform a single or minimal number of tasks (primary usage). For example, a smart sprinkler may only be activated if the soil moisture level goes below a certain level in the garden. Further, smart plugs allow users to control electronic appliances (including legacy appliances) remotely or create automated schedules. Undoubtedly, such automation not only brings convenience to their owners but also reduces resource wastage. However, these IoT solutions act as independent systems. The data collected by each of these solutions is used by them and stored in access-controlled silos. After primary usage, data is either thrown away or locked down in independent data silos. We believe a significant amount of knowledge and insights are hidden in these data silos that can be used to improve our lives; such data includes our behaviours, habits, preferences, life patterns and resource consumption.

To discover such knowledge, we need to acquire and analyses this data together in a large scale. Typical data analytics approaches are expected to facilitate process of inspecting, cleaning, transforming, and modeling data with the goal of discovering useful information, suggesting conclusions, and supporting decision-making. Large scale data analysis is the process of applying data analysis techniques to a large amount of data, typically in big data repositories. Such large scale analysis requires specialized algorithms, systems and processes to be developed in order to review, analyze and present information in a form that is more meaningful for organizations or end users. IoT middleware platforms have been developed in both academic and industrial settings in order to facilitate IoT data management tasks including data analytics. However, engineering these general purpose industrial-grade big data analytics platforms need to address many challenges as listed below to be able to support data analytical needs in different types of IoT applications.

This Special Section is focused on consolidating research efforts that aim at engineering big data analytics platforms for Internet of Things paradigms. Topics include, but are not limited to, the following research topics and technologies:

- ✓ Big data analytics, new algorithms and approaches
- ✓ Privacy preserving data analysis
- ✓ Big data for urban informatics
- ✓ Internet of Things middleware platforms
- ✓ Engineering IoT systems
- ✓ Experience reports on software development challenges for the IoT and takeaways;
- ✓ Software engineering challenges for mission-critical IoT systems;
- ✓ high reactivity, scalability, heterogeneity, configurability, resource-constrained systems, and robustness;
- ✓ Software methods and development techniques for the IoT
- ✓ Industry grade tools, platforms, and environments for developing software for the IoT
- ✓ Big data analytics software architectures
- ✓ Developing reusable analytics tools and frameworks
- ✓ Data analysis tools for developer community

Papers discussing new application areas and the resulting new developments data analytics in Internet of Tings platforms are especially welcome. Results obtained bysimulations must be validated in bounds by experiments or analytical results.

Manuscript Preparation and Submission

Follow the guidelines in "Information for Authors" in the IEEE Transaction on Industrial Informatics http://tii.ieee-ies.org/
Please submit your manuscript in electronic form through Manuscript Central web site: http://mc.manuscriptcentral.com/tii. On the submitting page #1 in popup menu of manuscript type, select: **SS on Engineering Industrial Data Analytics Platforms for Internet of Things**

Submissions to this Special Section must represent original material that has been neither submitted to, nor published in, any other journal. Before submitting manuscript check the review criteria (http://tii.ieee-ies.org/o/RC.pdf).

Note: The recommended papers for the section are subject to final approval bythe Editor-in-Chief. Some papers may be published outside the special section, at the EIC discretion

Editor-in-Chief: **Prof. Ren Luo,** http://tii.ieee-ies.org/ tii@ira.eentu.edu.tw

IEEE Transactions on Industrial Informatics

CALL FOR PAPERS

for Special Section on

.

Timetable: **Deadline for manuscript submissions** **March 1, 2017**
Expected publication date (tentative) **October 2017**

Guest Editors:

Charith Perera [Coordinator], Department of Computing, Faculty of Maths, Computing and Technology, Walton Hall, Milton Keynes, United Kingdom charith.perera@ieee.org

Athanasios V. Vasilakos, Department of Computer Science, Electrical and Space Engineering, Luleå University of Technology th.vasilakos@gmail.com

Gul Calikli, Chalmers University of Technology, Gothenburg, Sweden. calikli@chalmers.se

Quan Z. Sheng, School of Computer Science, University of Adelaide, Australia, michael.sheng@adelaide.edu.au

Kuan-Ching Li, Dept. of Computer Science and Information Engineering (CSIE) Providence University, Taiwan kuancli@gm.pu.edu.tw